

Met Éireann
- the Irish Meteorological Service
Statement of Strategy

20405

March 1996

Introduction

Background

In February 1994 a Government initiative on Strategic Management in the Civil Service was announced. The purpose of the initiative was to ensure that Government Departments and Offices contribute effectively to the implementation of Government policy, the National Development Plan and the Programme for Competitiveness and Work. In particular, Departments should strive to promote economic and social development, to cultivate a customer relations culture and to use resources efficiently. Strategic Management was seen as a technique which would enable Departments to deliver on these aims.

The Meteorological Service participated fully in the pioneering role played by the Department of Transport, Energy and Communications in the Civil Service Strategic Management Initiative. Having contributed to the development of the Department's Statement of Strategy, it implemented various measures in direct response to the Initiative. These included:

- The introduction of an 'Administrative Budget' style agreement between the Secretary of the Department and the Director of the Meteorological Service which incorporates delegation of authority and a fixed budget over the Administrative Budget cycle, subject to reductions of 2% per annum. The production of a Corporate Plan for the Meteorological Service is a condition of the agreement - this is due for publication in 1996.
- The use of lists of 'deliverables' on a divisional basis as an aid to planning. These lists are reviewed critically and continually, and used as a measure of progress in fulfilling goals.
- A re-organisation of divisions within the Meteorological Service and the establishment of a Commercial Division with the twin aims of augmenting commercial revenue and improving quality of service to all customers - including those in the non-commercial, public service category.

Early in 1995 it was decided that the Meteorological Service, because of its unique role, should embark on its own Strategic Management process. The objective would be to promote strategic thinking at all levels of the organisation and to help the Service focus more specifically on its own activities rather than on wider Departmental concerns. During the past months, this process has involved the direct participation of the full Senior Management Group - the Director, both Assistant Directors and all Heads of Divisions - together with an experienced Consultant/Facilitator who was appointed to assist the Group in the implementation of strategic management techniques.

The Strategic Management Process

The document *Framework for the Development of a Strategic Management Process in the Civil Service*, issued by the Department of Finance in March 1994, defines Strategic Management as a process by which an organisation

- maintains a considered and coherent view of the likely developments in its internal and external environment in the medium to long-term
- develops plans designed to maximise its effectiveness and efficiency in the expected circumstances
- implements these plans and continually reviews progress and makes any necessary adjustments

In pursuing the Strategic Management Initiative, the Meteorological Service aims to develop a plan which clarifies 'the organisation's mandate, where it wishes to be positioned in three to five years time, the obstacles to achieving this vision, how it intends overcoming any such obstacles, and crucially, focuses on the development of the systems and structures necessary to implement the plan'.

Application

The stages involved in applying the Strategic Management Process are

1. Strategic Review and Analysis

- reviewing/clarifying current mandate
- analysing internal environment
- analysing external environment
- identifying clients' interests

2. Mission

- developing a mission statement
- setting high-level objectives

3. Strategic Options and Choices

- identifying and selecting strategies
- formulating a Strategic Action Statement

4. Implementation

- preparing and initiating action programmes
- setting divisional objectives and performance targets
- identifying and installing required supports

5. Monitoring / Feedback

- monitoring progress
- taking corrective action
- identifying and logging planning gaps

Strategic Action Statement

The bulk of this document deals with stages 1 - 3 of the Strategic Management Process - i.e., it sets out the Strategic Action Statement for the Meteorological Service. In addition, a preliminary list of action programmes (Stage 4) is contained in an Annex.

The document comprises the following Sections:

Section 1 - Present Organisation

- an outline of the current position of the Meteorological Service

Section 2 - Mandate

- identifies the principal activities of the Meteorological Service, the main products it provides and who uses them

Section 3 - External Analysis

- an assessment of the threats and opportunities over the coming 3 - 5 years

Section 4 - Internal Analysis

- an appraisal of the organisation's strengths and weaknesses

Section 5 - Stakeholder Analysis

- identifies the expectations of those with an interest in the organisation, particularly the staff

Section 6 - Statement of Mission

- following on the previous analyses, a broad statement of the overall *raison d'être* of the organisation

Section 7 - Key Strategic Objectives

- the key strategic goals and policies necessary to achieve the Mission

Annex - Elaboration of Key Objectives

- action programmes for implementing the key strategic objectives

1. Present Organisation

1.1 Background

The Irish Meteorological Service was established by the State in 1936 to meet the requirements of the new transatlantic air services from Foynes. While the initial ten to fifteen years of its existence were mainly devoted to providing services to the expanding aviation sector, the Meteorological Service gradually broadened its forecasting activities to meet the needs of a wide spectrum of users of weather information - including agriculture, marine, industry and the communications media.

A core activity of the Meteorological Service has been the collection of climatological data from around the country - from the full-time meteorological stations operated by the Service itself, and from small rainfall and climatological stations run by co-operating public service agencies and by private individuals - so as to build up an archive of data sufficient to describe the climate of Ireland.

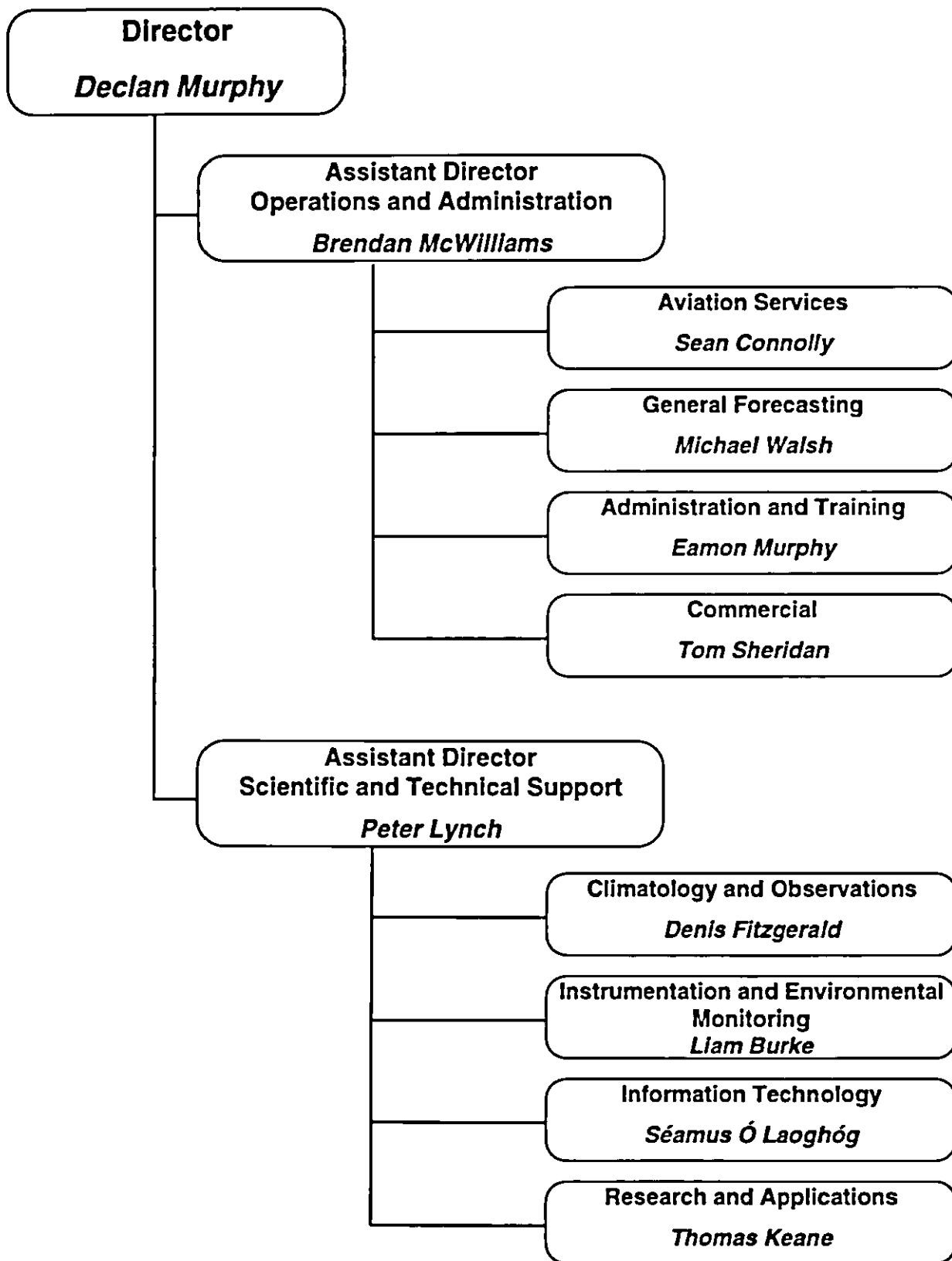
Since the late 1950's the Meteorological Service has maintained an increasing involvement in environmental monitoring - for example, measuring radioactivity levels in air and rainfall and assessing concentrations of acid rain. The monitoring of stratospheric ozone is the latest addition to these environmental activities.

The Meteorological Service has always been an integral part of the Civil Service and has always been a part of the Government Department responsible for transport, because of its historical association with aviation. Currently the Service is attached to the Department of Transport, Energy and Communications. The Meteorological Service was set up by Ministerial Order and has no legislative foundation other than the Ministers and Secretaries Act (1924).

1.2 Structure of the Meteorological Service

The Meteorological Service has a staff of approximately 235, working at 14 locations. It is organised in a divisional structure consisting of eight divisions as shown in the following diagram.

Structure of the Meteorological Service



2. Mandate

The following Mandate describes the principal activities and responsibilities of the Meteorological Service :

As the National Meteorological Service we take the leading role in the State on all matters relating to weather analysis and prediction. We provide weather forecasts, warnings, and a range of climatological and environmental services to the general public and to all sectors of the Irish economy. We are the principal adviser to the Minister on all meteorological matters, and participate on behalf of the State in the development of international meteorological collaboration.

- We issue public forecasts and severe weather warnings via the mass media, and have a defined role in providing emergency support to appropriate national and local agencies.
- In our commercial activities, we are the leading supplier of tailored weather forecasts to all sectors of the economy, including agriculture, fishing, construction, transport and tourism. We provide wide and easy access to our forecasts by means of premium-rate telephone and facsimile services.
- In accordance with the State's international obligations, we supply aviation with prescribed services such as aerodrome forecasts and en-route winds. We also provide meteorological support to the Air Corps.
- We provide and maintain the national meteorological observing network, including manned and automatic weather stations, communications networks, weather radar installations and satellite receivers.
- We maintain a databank of weather measurements which supports economic activities in such areas as construction and engineering, and also represents a national scientific resource. We pursue a programme of environmental monitoring, including geophysical measurements, air sampling and stratospheric ozone measurements.
- Through our participation in intensive national and international research programmes, we strive constantly to improve the quality and range of our forecast products. We are proud of the important contributions which our scientists make to the on-going development of meteorological science and applications.

3. External Analysis

3.1 Introduction

In the coming years the Meteorological Service will have to operate in, and adapt to, conditions that are significantly different from those which pertain at present. Many of these changes cannot be foreseen, but others may be inferred by an analysis of trends detectable in the current environment. In particular, we wish to identify

- *threats* which may impair the organisation's effectiveness
- *opportunities* to improve the organisation's performance

In this context, the following issues were considered:

- *How is the external world changing around the Meteorological Service? What is driving these changes? Where will they lead?*
- *What changes can be discerned in the meteorological services of other countries? Can we learn from them? Will they have repercussions for us?*
- *What changes are taking place in other Departments of the Civil Service, in state companies and in the commercial sector? What pressures are driving these changes? Will they affect us, in the shorter or longer term?*

In order to help answer these questions, a series of interviews was conducted with prominent figures active in key sectors of industry, the media, the academic world etc. By listening to their views on pressures and trends over the coming years, the Management Group hoped to gain a broader understanding of the external environment in which the future Meteorological Service would operate. In selecting interviewees, and during the interviews themselves, the emphasis was placed on assessing the wider political, economic and social trends, rather than considering the particular circumstances of the Meteorological Service.

Interviews were conducted with representatives of the following key sectors:

Media

Four interviews with senior personnel in newspaper and broadcasting companies, both national and local. Cost reduction through the use of modern technology and pressure from competitors emerged as the greatest concerns.

Communications

Three interviews with the regulatory authorities and with commercial companies whose business is crucially dependent on modern communication technology. They expected greater deregulation and increased competition in the coming years.

Agriculture

Six interviews with farmers, agricultural economists and senior executives in the food and forestry industries. They stressed the dependence of the sector on the Common Agricultural Policy (CAP), and expected an accelerating trend towards a core of commercial farmers, along with growth in the importance of forestry.

Industry and Business

Five interviews with senior executives in the building and confectionery industries, in management training organisations and in business representative associations. Among the key issues to emerge were competitiveness and the effective use of human resources.

Environment

Three interviews with senior executives in environmental planning and monitoring organisations. They expect that the growing public awareness of environmental issues will lead to increasing demands for effective supervision and regulation.

Utilities/Energy

Four interviews with leading energy supply and distribution companies. The major challenges posed by increasing deregulation will be met by improved customer service, strict control of basic costs and greater overall efficiency.

Distribution and Transport

Four interviews with senior executives of passenger and freight transport companies (land and sea). They emphasised quality, reliability and value for money as key factors in an increasingly competitive market.

Technology

Four interviews with leading multinational companies based in Ireland - two manufacturers of computer hardware, one software developer and one producer of digital components. They all stressed the need to identify core market sectors, and the importance of staff training and development programmes.

Aviation

Four interviews with airport managers and representatives of leading airline companies. They expect leisure travel to provide the main growth in coming years, while new infrastructure and additional regulation will increase costs.

Recreation and Tourism

Three interviews with sporting organisations and commercial leisure companies. The recreation/leisure market was considered to have great potential for growth; major sports events staged in Ireland could significantly increase tourist numbers.

Offshore/Marine

Four interviews with representatives of the fishing industry and with marine regulatory bodies. The employment potential of the marine industries was stressed, and also the increasing impact of European Union directives.

Government Departments/ State Bodies

Five interviews with senior officials in Government Departments. The emerging emphasis on value for money in the Public Service was noted, as was the growing demand for high standards of customer service. A willingness to explore more radical methods of meeting requirements was also apparent.

Miscellaneous

Eight interviews with senior academics, trade union officials, and senior executives from the legal and insurance industries.

3.2 External Forces and Pressures

In all, a total of 57 external interviews were conducted. The principal issues arising from an analysis of these interviews are summarised below:

Competition

Irish organisations in both the public and private sectors will in future have to operate in an increasingly competitive environment, and creative management will be essential for continuing viability. From the perspective of the Meteorological Service the two principal areas of concern are competition from the private sector and competition from other national meteorological services.

Technology

The increasing pace of technological change, rather than the impact of technology *per se*, will pose the greatest challenge. The most dramatic developments will probably be in the field of communications, making large volumes of information instantly accessible to anyone who cares to search for it.

Political Developments

Pressure on public service bodies to reduce costs is likely to continue. Government policy may result in a change in the status of the Meteorological Service, from Civil Service to e.g. agency or semi-state body.

Human Resources

Effective on-going training programmes will be essential to maintain and develop skills. A recognition of the inevitability of change, and of the opportunities and threats which it brings, needs to be cultivated.

European Union

European Union directives and regulations in areas such as copyright, data protection/freedom of information and competition law will have an increasing impact on the Meteorological Service. Benefits will probably accrue from the co-operative possibilities available within various European frameworks.

Environmental Awareness

There will be a growing awareness on the part of the general public of the importance of the natural and man-made environments. The Meteorological Service may benefit from a corresponding Government requirement for reliable monitoring and advisory agencies, independent of vested interests in the private sector.

4. Internal Analysis

4.1 Introduction

The Internal Analysis seeks to establish how well the Meteorological Service is equipped to cope with the external pressures noted in the previous section. Among the issues to be considered are

- *the appropriateness of the current organisational structure*
- *the effectiveness of the present management style*
- *the range and competitiveness of current products*
- *the numbers and categories of current staff*
- *the current profile of staff skills*
- *training*
- *the use and impact of new technology*

4.2 Strengths and Weaknesses

The following strengths and weaknesses were identified as particularly significant:

Organisational Issues

Strengths: Unified organisation strongly focused on meteorology as its single core activity.

Weaknesses: Peripheral position in Departmental organisation. Lack of clarity regarding legal status and entitlements, and uncertainty concerning the definition of the Meteorological Service's public-sector and commercial roles. Insufficient devolution of responsibility from senior management to lower grades.

Management

Strengths: The Meteorological Service has a degree of autonomy in administering its own day-to-day affairs. The management team is experienced in the running of a national meteorological service and in international meteorology, with personal knowledge of the scientific and operational aspects.

Weaknesses: There is insufficient application of modern management techniques. There are some weaknesses in general management skills, in marketing and in financial management. Many staff have little formal involvement in the management process. The perceived security of Civil Service employment weakens management motivation.

Products

Strengths: Wide range of products generated by proven operational systems, covering most market sectors.

Weaknesses: Resources stretched to cope with recent strong increase in customer demand. Development of modern forecasting techniques has not kept pace with best international practice. There is insufficient attention to active marketing and to formal quality measurement and control. Improvements are needed in product presentation and customisation. Easily-recognised branding is lacking.

Cost/Competitiveness

Strengths: Increased competitive pressure has improved overall effectiveness.

Weaknesses: Cost base is high relative to competitors. Easy availability of meteorological information to private companies affects the level of commercial return to the Meteorological Service. Civil Service ethos inhibits development of commercial activities.

Finance

Strengths: Administrative Budget provides a reasonable basis for medium-term financial planning. Government funding available for public service element of operations. Good return from aviation sector and increasing income from commercial activities.

Weaknesses: On-going pressure of Government budgetary cut-backs of 2% per annum. Salary costs represent a high proportion of overall expenditure, whereas funding for capital projects is inadequate. Constraints of Civil Service financial practices diminish incentive to expand commercial income.

Technology

Strengths: Information Technology (IT) and Instrumentation infrastructures are well managed and conform to international standards. Effective IT Plan in place.

Weaknesses: Investment in new technology could improve effectiveness but capital and maintenance costs are high. Implementation of new technological systems places a strain on limited staff resources, and in some cases the anticipated benefits are not realised. No overall policy on the use of technology in the Meteorological Service.

Human Resources

Strengths: High-calibre, well-educated and committed work force.

Weaknesses: Initiative and creativity stifled by poor promotion ratios, grades with long salary scales and lack of reward schemes other than promotion. Flexibility and adaptability are lacking, and there is little internal staff mobility. There are relatively many staff committed to routine operations, and relatively few engaged in development and support services. The Meteorological Service has insufficient control over staff recruitment, and has inherited an archaic structure of grades, salaries etc. Training and personal development have received inadequate priority and resources.

5. Stakeholder Analysis

5.1 Introduction

A Stakeholder is any person or organisation which is affected by, or can exert an influence on, the operations of the Meteorological Service. The term includes among others the Government, staff, customers, suppliers and other national meteorological services. The purpose of this analysis is to assess how the stakeholders perceive the operations of the Meteorological Service, and how they are likely to be affected by future Meteorological Service policy.

Since the interests of most other stakeholders were considered in the course of the external analysis (Section 3), the analysis in this section concentrates on two groups:

- the staff
- other European meteorological services

The views of the staff on their working environment were assessed by means of a questionnaire, the results of which are described in Section 5.2.

In Section 5.3, an initial discussion on competition and co-operation in European meteorology is followed by an account of how some European meteorological services perceive the implications for their operations over the coming years.

5.2 Staff

Questionnaire

In order to obtain feedback from the staff on the environment in which they work, a questionnaire was issued by the facilitator to a representative sample of 31 staff members. The questionnaire was designed to measure how staff assess the quality of human resource management within the organisation, and by implication the importance attached by management to human resource issues.

In particular, the questionnaire aimed to assess the following seven aspects of the working environment:

- | | |
|-------------------------------------|--------------------------|
| 1. <i>Clarity of Purpose</i> | 4. <i>Recognition</i> |
| 2. <i>Morale</i> | 5. <i>Teamwork</i> |
| 3. <i>Fairness</i> | 6. <i>Communications</i> |
| 7. <i>Healthy Human Environment</i> | |

Results of Questionnaire

In filling out the questionnaire, staff were presented with a series of positive statements concerning the work environment (e.g. 'Change is managed well', 'There are opportunities for career development'). Each statement was scored on a scale of 1 ('Strongly Disagree') to 5 ('Strongly Agree'). The statements were divided into seven groups, one corresponding to each of the work attributes listed above, and the overall score for a particular attribute was calculated as the mean score awarded to the statements in its group.

Commenting on his analysis of the responses, the facilitator made the following points:

- The overall scores were higher than expected, and at least equal to scores obtained from similar exercises carried out in the private sector.
- The best scores were awarded for *Clarity of Purpose*, *Morale* and *Teamwork*.
- Lower scores were obtained for *Fairness*, *Recognition*, *Communications* and *Healthy Human Environment*.

The results of the questionnaire highlight the human resource management issues which need to be addressed as part of the overall challenge facing the Meteorological Service during the coming years. Management energy expended on those work attributes which received lower scores should give the most rapid feedback in terms of improving the overall working environment.

5.3 Other European Meteorological Services

The General European Context

The national meteorological services (NMS's) of western Europe have developed to a generally comparable standard of competence and each provides services to meet a broadly similar range of requirements. Up to recently they have confined their activities to their own territories and to the high seas, and have not provided services in the territories of other countries. This arrangement was known as the 'Gentleman's Agreement' and reflected the interdependence of NMS's who need to share information on a global basis in order to carry out their functions.

In recent years several factors have conspired to force a change in relationships between the European NMS's. These include:

- The diminishing resources of individual NMS's, which has driven them to seek ever greater levels of co-operation.
- The much-improved accuracy of weather forecasts, which has prompted many NMS's to exploit their commercial potential, partly in response to a reduction in state subventions.
- The efforts of private meteorological companies to exploit the market for weather information, aided by the free availability of data from the United States.
- European Union competition law and national competition laws, which effectively regard the 'Gentleman's Agreement' as an illegal cartel, and dictate that the national meteorological services must not abuse their 'dominant' positions by, for example, refusing to give the private sector access to their data.

The response of the European NMS's to these developments has included the proposed setting up of two new forms of co-operation known as EUMETNET and ECOMET.

EUMETNET will be a loose network of co-operation within which the NMS's will identify topics on which they might usefully collaborate and will, on a voluntary basis, agree to participate in specified projects. For each project one NMS will act as the co-ordinating and administrative centre and may also do the development work. The fruits of the co-operation will be available to all the participating NMS's.

ECOMET is an Economic Interest Grouping which is intended to replace the 'Gentleman's Agreement'. The main feature of ECOMET is that customers in Europe

would be free to place their business with any of the national meteorological services by choosing from a Catalogue of products available from the members of ECOMET. The tariffs for basic data and computer forecasts would be fixed by ECOMET, while the individual meteorological services would determine the tariffs for 'value-added products'. The revenue would be shared in a standard way (and not equally) between the providing state, the national meteorological service in whose territory the product was made available, and the ECOMET members as a whole. Private meteorological firms would be able to get a sub-licence which would give access to data or products from the Catalogue.

The Meteorological Service intends to participate actively in both EUMETNET and ECOMET.

The European National Meteorological Services

The following issues emerged from discussions with representatives of two leading European NMS's:

- in response to demands to reduce costs, improve value for money and encourage competition, there will be pressure to establish the individual European NMS's on some form of agency basis.
- the idea of creating a central European Meteorological Service has been mooted, but has not as yet attracted significant support.
- co-operation within the context of ECOMET and EUMETNET may be supplemented by bilateral or multilateral agreements among the European NMS's.
- competition, whether with other NMS's or with commercial meteorological companies, will tend to reduce income from aviation, the media and other sectors.
- involvement in environmental monitoring and forecasting will increase, probably in co-operation with other environmental agencies.
- the smaller NMS's are likely to concentrate on producing highly-accurate, localised forecasts, relying on larger NMS's to provide global products. These larger-scale forecasts may in any event be freely available on the Internet.

6. Mission

In the earlier Sections of this document we have

- stated the Mandate of the Meteorological Service - i.e., the products and services which it is the responsibility of the Meteorological Service to provide
- examined the external environment in which the Meteorological Service will operate during the coming years, attempting to identify the threats and opportunities which may arise
- clarified the internal strengths and weaknesses of the organisation
- identified the role and expectations of some key stakeholders, particularly the staff

In the light of the analyses described above, it should now be possible to define more clearly the overall role of the Meteorological Service and, most importantly, the key strategic goals which need to be pursued in order to fulfil this role.

The fundamental role of an organisation is often specified in a Mission Statement, which sets out the key parameters of the organisation's business and procedures. The Mission should identify the basic *raison d'être* of the organisation in terms of the customer needs it intends to satisfy, the markets within which it will operate and the manner in which it will conduct its affairs. It therefore overlaps to some extent with the Mandate statement, but looks to the future and tries to envisage the type of organisation that can best deliver the products and services required by the Mandate. The Mission should be expressed in broad terms that will remain valid in the medium to long term, and should provide a rallying point for everyone working in the organisation.

Having determined the Mission Statement, the next step is to decide the key strategic goals which must be achieved if the Mission is to be accomplished. These goals will normally embrace all the major units and operations of the organisation - products and services, human resources, finance etc. Together they set out the critical policies which the organisation will attempt to implement over a period of 3 - 5 years.

The remainder of this section sets out the Mission Statement for the Meteorological Service. The key strategic goals are outlined in Section 7. An elaboration of these key goals, and some proposed action programmes for their attainment, is contained in the Annex.

Mission Statement

Our Mission is to meet the national requirement for high-quality weather forecasts and associated services, with optimum efficiency and value for money.

This Mission Statement implies that we, as the National Meteorological Service, will

- help to ensure the protection and safety of life and property by issuing public weather forecasts and warnings
- contribute effectively to national prosperity and to Government objectives by supplying relevant meteorological services to all sectors of the economy
- ensure customer satisfaction by continually improving the range and quality of our forecasts, the cost-effectiveness of our operations and our overall standard of service
- foster a professional and supportive work environment which attracts, retains and develops committed employees
- ensure the maintenance of a high-quality and cost-effective meteorological infrastructure, consistent with national requirements and resources
- meet the State's obligations to provide meteorological services to the aviation sector
- enhance the quality of our climatological archives and provide easy and effective access to our databases
- participate in the on-going development of meteorological science and its applications in collaboration with our European partners and with the wider international community
- contribute to the effective monitoring and good management of the natural environment

7. Key Strategic Goals

In fulfilment of its Mission, the Meteorological Service will seek to achieve the following Strategic Goals during the coming 3 - 5 years:

1. To achieve for the Meteorological Service an organisational status within the public sector appropriate to its modern role, and to determine a correct balance between its public service and commercial functions.
2. To apply modern management techniques at all levels of the organisation, and in particular to implement efficient internal communication procedures, enhance planning and policy formulation, streamline decision making and closely monitor the cost-effectiveness of spending programmes.
3. To maximise revenue from commercial activities, improve productivity and reduce overall costs.
4. To develop a comprehensive policy on the use of modern technology in weather observing systems, communications, data processing and in management systems.
5. To place a greater emphasis on customer service. To improve the quality, range and presentation of forecast products, and to promote the implementation of up-to-date forecasting procedures and techniques.
6. To examine the current clerical, technical and professional grade structures with a view to matching individual skills to work requirements, and to promoting overall staffing flexibility. To achieve an appropriate balance between staff resources devoted to operational and support functions. To promote a work environment which emphasises openness to new ideas, recognition of individual and team effort and personal accountability.

Annex

Elaboration of Strategic Goals

Specific procedures and policies aimed at implementing the strategic goals outlined in Section 7 will appear in the Corporate Plan. Arising out of the strategic planning exercise carried out to date, we list in this Annex some particular action programmes which have been considered by the Management Group. The action programmes listed here do not in themselves constitute a Corporate Plan, but are intended to elaborate on the key strategic goals, indicate the approach of senior management to the planning process, and stimulate further discussion.

A.1 The Organisation and Role of the Service

1. Define the weaknesses and constraints of current organisational arrangements in the light of experience of, for example, commercial activity.
2. Produce a proposal for discussion with the Secretary of the Department of Transport, Energy and Communications and with the Minister on a new organisational arrangement appropriate to the modern and revised role of the Meteorological Service, based on a review of organisational models in the Irish public service and in other meteorological services.
3. Compile a definition of the public service (as distinct from commercial) role of the Meteorological Service which can be agreed with Government and regularly reviewed and costed.
4. Develop criteria whereby the public sector and commercial components of the Meteorological Service's activities can be explicitly identified and quantified.
5. Develop criteria upon which to select commercial activities to pursue.
6. Pursue suitable opportunities for greater integration or cohesion of meteorological services in Europe. Within the framework of EUMETNET or on a bilateral basis exploit all opportunities for co-operation with other meteorological institutes.
7. Similarly explore the possibilities of interaction with private sector meteorology and with the private sector generally.
8. Investigate the possibility of entering the international market in the new era of competition between meteorological services.

9. Strengthen the Meteorological Service's links with the Department of the Environment and with the Environmental Protection Agency in the climatology and environmental monitoring areas. Identify additional possibilities for enhancement of co-operation with other Government Departments such as Agriculture Food and Forestry, Defence and Health.
10. Consider the feasibility of more effective collaboration with agencies in related disciplines such as hydrology and oceanography.

A.2 Management Procedures

1. Institute a system of formal Corporate Planning in the Service, to include target setting and the use of performance indicators.
2. Implement a programme of greater delegation of authority in the organisation, and bring greater clarity into the consultation and decision-making processes.
3. Review and improve the project management systems in the Meteorological Service.
4. Introduce a comprehensive management training programme, with a particular focus on the acquisition of financial skills and the management of change.
5. Make greater use of expertise from outside the organisation.

A.3 Cost Base

1. In general, review all activities and methods with a view to justifying them on cost grounds, finding more efficient ways of carrying them out and prioritising on cost/benefit considerations.
2. Develop better systems, including the incorporation of accrual accounting principles, for determining the true costs of activities.
3. Increase efforts to identify and secure commercial opportunities where a genuine profit can be made, and a net contribution to help defray the cost of the Meteorological Service achieved.
4. Ensure transparency in the Meteorological Service's commercial operations so as to facilitate direct comparison with the private sector.

A.4 Technology

1. Set up an internal Working Group on the requirements for weather observations now and in the future, and on ways of meeting these requirements in the context of decreasing budgetary resources, with a brief to examine radical options.
2. Develop a detailed technology policy incorporating both information technology and meteorological instrumentation. Ensure that decisions on major technological investment are linked to the achievement of the basic aims of the Meteorological Service, and that a satisfactory return on investment is achieved.
3. Co-operate with the international meteorological community in developing cost-effective methods of providing the required infrastructure on the oceans and in space.
4. Exploit suitable opportunities to bring the fruits of international collaboration to bear on the cost-effectiveness of the national infrastructure.

A.5 Product Range and Forecasting Techniques

1. Introduce new systems for assessment of the quality of forecasts, particularly those issued to end users.
2. Intensify efforts to identify customer requirements and level of satisfaction with products and services.
3. Introduce a Statement of Service which will establish the level and quality of service which customers may expect.
4. Continue to exploit any reasonable means to improve the intrinsic quality of all products.
5. Place increased emphasis on the quality of presentation of forecasts in all forms.
6. Use the existence of active competition to advance a customer-oriented culture within the organisation.
7. Set up a Working Group on Forecasting Techniques to review the methods currently employed and assess the potential impact of improving technology and recent scientific advances. The Working Group should make recommendations taking due note of the growing pressures on resources, the experience of other countries and the more commercial and competitive ethos which is now emerging.
8. Pursue energetically all opportunities for collaboration on the development of techniques with other meteorological services.

9. Explore the possibility of closer links with universities, within Ireland or abroad, with a view to encouraging them to give a higher priority to meteorology or to enter into practical arrangements for collaboration.

A.6 Human Resources

1. Identify the skills which the Meteorological Service requires now and in the foreseeable future.
2. Examine the work practices and grade structures in the Meteorological Service to determine if efficiency and morale benefits could be gained by a new grade system, by more flexibility between grades and by re-assessing the distinctions between 'clerical', 'technical' and 'professional' tasks.
3. Formulate and implement a manpower policy aimed at achieving a net transfer of staff resources from the production areas to the development, support and marketing functions.
4. Appoint a full-time Training Officer with a brief to formulate comprehensive training programmes covering skills and knowledge acquisition and staff development.
5. Strengthen consultative procedures and find ways of increasing personal accountability and ownership of tasks throughout the Meteorological Service.
6. Adopt a series of measures aimed at improving internal communications and in particular at addressing the problems of staff based outside of Dublin.
7. Introduce new and tangible ways of improving recognition of individual and team efforts.
8. Devise and implement a staff developmental programme aimed at enhancing individual effectiveness and improving the overall efficiency of the Meteorological Service.